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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/518,041

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Robert Lewis Clarke

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FISH & ASSOCIATES, PC

ROBERT D. FISH

2603 Main Street

Suite 1050

Irvine, CA 92614-6232

EXAMINER

BEST, ZACHARY P

ART UNIT

PAPER NUMBER

1795

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/518,041	Applicant(s) CLARKE, ROBERT LEWIS	
	Examiner Zachary Best	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 12-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

ZINC AIR BATTERY WITH ACID ELECTROLYTE

Examiner: Z. Best S.N. 10/518,041 Art Unit: 1795 July 16, 2008

DETAILED ACTION

1. Applicant's amendment filed on May 21, 2008 was received. Claim 1 was amended.
2. The text of sections of Title 35 U.S.C. not included in this action can be found in the prior Office Action issued on February 21, 2008.

Claim Objections

3. Claim 5 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 5 recites that the compound is sulfurous acid, which is not an organic compound as recited in Claim 1.

Claim Rejections - 35 USC § 102

4. The rejection of Claims 1-2 and 8 under 35 U.S.C. 102(b) as being anticipated by Blurton et al. is withdrawn because Claim 1 has been amended.

Art Unit: 1795

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-4 and 8-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Clarke et al. (US 2003/0162087 A1).

The applied reference has a common inventor (Robert Clarke) with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Regarding Claims 1-4 and 8-9, Clarke et al. teach a secondary battery comprising a static acid electrolyte fluid (page 6) in which zinc forms a redox pair with another material (page 5), and wherein acidity of the electrolyte is provided at least in part by methane sulfonic acid (claim 4), which forms a complex with the zinc (page 4). Although Clarke et al. do specifically teach the redox pair is lanthanide and zinc, Clarke et al. also teach zinc-air (zinc-oxygen) redox pair for use in zinc redox pair batteries (page 1).

Regarding Claim 10, Clarke et al. teach the bipolar electrode (acts as both a cathode and an anode) is glassy carbon (claim 9).

Claim Rejections - 35 USC § 103

7. The rejection of Claims 3 and 9 under 35 U.S.C. 103(a) as being obvious over Blurton et al. in view of Armstrong is withdrawn because Claim 1 has been amended.

8. The rejection of Claims 4-5 under 35 U.S.C. 103(a) as being obvious over Blurton et al. in view of Armstrong and further in view of Harada et al. is withdrawn because Claim 1 has been amended.

9. The rejection of Claim 6 under 35 U.S.C. 103(a) as being obvious over Blurton et al. in view of Awano is withdrawn because Claim 1 has been amended.

10. The rejection of Claim 7 under 35 U.S.C. 103(a) as being obvious over Blurton et al. in view of Awano, and further in view of Popescu is withdrawn because Claim 1 has been amended.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being obvious over Clarke et al., as applied to Claims 1-4 and 8-10, and further in view of Fleischer et al. (US 6,225,009 B1).

Regarding Claim 5, Clarke et al. teach the battery as recited in paragraph 6 above. However, Clarke et al. fail to teach said compound is selected from the group consisting of polyvinyl sulfonic acid and polyvinyl sulfuric acid.

Fleischer et al. teach an electrolyte for an electrochemical cell, which is an aqueous solution (fluid) (col. 5, lines 54-64), and Fleischer et al. further teach that methane sulfonic acid and polyvinyl sulfonic acid are used in the electrolyte as a proton conducting material (col. 5, lines 54-64). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute polyvinyl sulfonic acid for methane sulfonic acid in the battery of Clarke et al. because Fleischer et al. teach functional equivalency of polyvinyl sulfonic acid and methane sulfonic acid as a proton conducting material in an electrolyte in an electrochemical cell. Alternatively, simple substitution of one known element for another to obtain predictable results would have been obvious. *See KSR v. Teleflex*, 127 S. Ct. 1727, 82 U.S.P.Q.2d 1385 (2007).

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being obvious over Clarke et al., as applied to Claims 1-4 and 8-10, and further in view of Awano (JP 57-101359 A).

Regarding Claim 6, Clarke et al. teach the battery as recited in paragraph 6 above. However, Clarke et al. fail to teach said battery further comprises a zinc brightener.

Awano teach a battery in which a dendrite-forming metal (zinc) is used as a redox pair, and a brightener for zinc plating (zinc brightener) is used as a dendrite inhibitor (abstract). Therefore, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to create the battery of Clarke et al. with a zinc brightener because Awano teach the use of the brightener to inhibit zinc dendrite formation.

13. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clarke et al. in view of Awano as applied to Claim 6, and further in view of Popescu (US 4,226,682 A).

Clarke et al. and Awano teach a battery as recited in Paragraph 12 above. However, Clarke et al. and Awano fail to teach said compound zinc brightener is from the group consisting of an aromatic monocarboxylic acid, an aromatic aldehyde, and a polyhydric alcohol having ethoxylated or propoxylated hydroxyl groups.

Popescu teach a zinc brightener comprising an aromatic monocarboxylic acid (col. 4, lines 58-63) or aromatic aldehydes (col. 5, line 21). Popescu further teach that the functions of the brightener may be better controlled with the above compounds (col. 4, lines 52-57 and col. 5, lines 38-41). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to create the battery of Blurton et al. and Awano with a brightener of an aromatic monocarboxylic acid or aromatic aldehyde because Popescu teach the use of such brightener to enhance the uniformity and brilliance of the zinc deposit. Alternatively, simple substitution of one know element for another to obtain predictable results would have been obvious. *See KSR v. Teleflex*, 127 S. Ct. 1727, 82 U.S.P.Q.2d 1385 (2007).

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary Best whose telephone number is (571) 270-3963. The examiner can normally be reached on Monday to Thursday, 7:30 - 5:00 (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

zpb

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795